CLAIMS

1. An article which comprises

(1) a first component composed of a first polymeric composition, the first polymeric composition comprising a crystalline polymer which has

(a) a peak melting temperature T_p which is at least –40°C and at most 100 °C,

(b) an onset of melting temperature T_o such that $(T_p - T_o)$ is less than $(-1.7757e^{-5})x(T_p^3)+(3.339e^{-3})x(T_p^2)-(6.977e^{-2})x(T_p) + k$,

where k is 21, and

(c) a heat of fusion of at least 5 J/g;

and

(2) a second component which

(a) is composed of a second composition, preferably a second polymeric composition, and

(b) overlaps the first component;

the first polymeric composition having a volume expansion between T_o and T_p which is greater than the volume expansion of the second composition over the same temperature range, and the first and second components having dimensions and shapes such that the article, in the absence of external restraint, changes shape when it is heated from T_o to T_p and when it is cooled from T_p to T_o.

2. An article according to claim 1 wherein the first polymeric composition has a volume expansion between T_o and T_p which is at least 5 times the volume expansion of the second composition over the same temperature range.

3. An article according to claim 1 wherein the first polymeric composition has a volume expansion between T_o and T_p which is 3 to 10 times the volume expansion of the second composition over the same temperature range.

4. An article according to claim 1 wherein the first polymeric composition contains at least 80% of the crystalline polymer.

5. An article according to claim 1 wherein the crystalline polymer is a side chain crystalline (SCC) polymer having a T_p of -20 to 40 °C, and a T_o such that $(T_p - T_o)$ is less than $(-1.7757e^{-5})x(T_p^3)+(3.339e^{-3})x(T_p^2)-(6.977e^{-2})x(T_p) + k$, where k is 16.

6. An article according to claim 1 wherein the crystalline polymer is a side chain crystalline (SCC) polymer having a T_p of -20 to 40 °C, and a T_o such that $(T_p - T_o)$ is less than $(-1.7757e^{-5})x(T_p^3)+(3.339e^{-3})x(T_p^2)-(6.977e^{-2})x(T_p) + k$, where k is 11.

7. An article according to claim 1 wherein the first polymeric composition contains at least two said crystalline polymers having T_ps which differ by a least 10 °C.

8. An article according to claim 1 which is a fiber which is relatively straight at temperatures above T_p and becomes curved when cooled from a temperature above T_p to a temperature below T_o.

9. An article according to claim 8 wherein the first and second components are in a configuration selected from side-by-side configurations and eccentric core-sheath configurations.

10. An article according to claim 8 which is a continuous filament having a constant cross section throughout its length.

11. A yarn comprising a fiber as defined in claim 8.

12. A fibrous mass comprising a plurality of fibers each of which comprises

(1) a first component composed of a first polymeric composition, the first

polymeric composition comprising a crystalline polymer which has

(a) a peak melting temperature T_p which is at least –40°C and at most 100 °C,

(b) an onset of melting temperature T_o such that $(Tp - T_o)$ is less than $(-1.7757e^{-5})x(T_p^3)+(3.339e^{-3})x(T_p^2)-(6.977e^{-2})x(T_p) + k$, where k is 16, and

(c) a heat of fusion of at least 5 J/g;

and

(2) a second component which

(a) is composed of a second polymeric composition, and

(b) overlaps the first component;

the first polymeric composition having a volume expansion between T_o and T_p which is greater than the volume expansion of the second composition over the same temperature range, and the first and second components having dimensions and shapes such that the article, in the absence of external restraint, changes shape when it is heated from T_o to T_p and when it is cooled from T_p to T_o.

13. A fibrous mass according to claim 12 wherein the first polymeric composition has a volume expansion between T_o and T_p which is at least 5 times the volume expansion of the second composition over the same temperature range.

14. A fibrous mass according to claim 12 wherein the first polymeric composition contains at least 80% of the crystalline polymer, and the crystalline polymer is a side chain crystalline (SCC) polymer having a T_p of -20 to 40 °C, and a T_o such that $(T_p – T_o)$ is less than $(-1.7757e^{-5})x(T_p^3)+(3.339e^{-3})x(T_p^2)-(6.977e^{-2})x(T_p) + k$, where k is 16.

15. A fibrous mass according to claim 12 wherein the fibers are relatively straight at temperatures above T_p and becomes curved when cooled from a temperature above T_p to a temperature below T_o.

16. A fibrous mass according to claim 15 wherein the first and second components are in a side-by-side configuration.

17. A fibrous mass according to claim 12 wherein the crystalline polymer is cross-linked.

18. A fibrous mass according to claim 12 which contains 10 to 50% of said fibers and 90 to 50% of other fibers.

19. A fibrous mass according to claim 12 which is part of clothing for a human being.

20. A method of making an article as defined in claim 1 which comprises coextruding first and second polymeric compositions as defined in claim 1.